

REMARKS

The present remarks are responsive to the Official Action mailed November 8, 2002, the shortened statutory period for response having expired on February 8, 2003. Applicants submit herewith a three month extension petition to reset the deadline for responding to the Official Action to and including May 8, 2003. In view of the following remarks, reconsideration of the Examiner's rejection and issuance of a Notice of Allowance of all previously pending claims is respectfully requested.

Applicants note that this amendment includes additional claims directed to various aspects of the invention. Applicants believe that these claims, as well as the previously filed claims, are all allowable over the prior art.

Referring specifically to the Official Action and with regard to the phrase "modes different in transmission timing from each other," Applicants note that the plurality of transmission modes and thus differing timing sequences of sending triggering pulses, are each described in detail in the specification. For instance, page 6, line 18 through page 7, line 3 describe the transmission modes. For the Examiner's convenience, those sections have been reprinted below:

When the first transmission mode is set by the mode setting circuit 20, the dividing/pulse generating circuit 21, as shown in Fig. 3A, generates a trigger pulse at an N-th second crank pulse on the basis of the time when a first crank pulse is generated. This results in the dividing/pulse generating circuit 21 generating a trigger pulse at any point of fluctuating flow of exhaust gas.

When the second transmission mode is set by the mode setting circuit 20, the dividing/pulse generating circuit 21, as shown in Fig. 3B, generates, on the basis of the time when a first crank pulse is generated, a trigger pulse at each of an N-th second crank pulse in a first period, an (N+1)-th second

crank pulse in a second period,..., and an  $(N+n-1)$ -th second crank pulse in an  $n$ -th period. This results in the dividing/pulse generating circuit 21 generating a trigger pulse while varying or sweeping it in every period.

When the third transmission mode is set, the dividing/pulse generating circuit 21, as shown in Fig. 3C, generates a trigger pulse at every  $N$ -th second crank pulse or predetermined intervals.

The plurality of transmission modes are also described with respect to the flow rate measuring apparatus method shown in Fig. 5. The text associated with this figure begins on page 9, line 4 and ends on page 11, line 11. Again, for the Examiner's convenience, this section has been reprinted below:

Now, operation of the flow rate measuring apparatus of the illustrated embodiment will be described with reference to Fig. 5 which is a flow chart showing operation of the flow rate measuring apparatus.

In a step S1, the transmission timing control section 2 judges which of the first, second and third transmission modes is selected. When the mode setting circuit 20 sets the first transmission mode, the operation proceeds to a step S2. When the mode setting circuit 20 sets the second transmission mode, the operation proceeds to a step S3. Also, when the mode setting circuit 20 sets the third transmission mode, the operation proceeds to a step S9.

In the step S2, the transmission timing control section 2 executes processing in the first transmission mode. The dividing/pulse generating circuit 21, as shown in Fig. 3A, generates a trigger pulse at an  $N$ -th second crank pulse on the basis of the time when a first crank pulse is generated. This results in the flow rate detection circuit 5 measuring a flow rate of exhaust gas at the time when an  $N$ -th second crank pulse is generated.

In the step S3, the transmission timing control section 2 executes processing in the second transmission mode. The dividing/pulse generating circuit 21, as shown in Fig. 3B, generates a trigger pulse at an  $(N+n-1)$ -th second crank pulse in an  $n$ -th

period. This results in the flow rate detection circuit 5 measuring a flow rate of exhaust gas at each of an N-th second crank pulse in a first period, an (N+1)-th second crank pulse in a second period,..., and an (N+n-1)-th second crank pulse in an n-th period.

In a step S4, the operation circuit 6 reproduces fluctuating flow of exhaust gas on the basis of a result of the calculation by the flow rate detection circuit 5. The operation circuit 6 joins exhaust gas flow rates at an N-th second crank pulse in a first period, (N+1)-th one in a second period,..., and (N+n-1)-th one in an n-th period together, to thereby reproduce a flow rate waveform.

In a step S5, the transmission timing control section 2 judges whether or not a transmission timing is reset. A flow rate waveform of exhaust gas is reproduced in the step S4, therefore, the transmission timing control section 2 detects a zero point of an AC signal of the flow rate waveform, a peak value of each of upper and lower limits thereof and the like, so that a transmission timing corresponding to each of such points may be reset. The transmission timing control section 2 judges whether or not a transmission timing is reset at any point such as the zero point, the peak value or the like. When the transmission timing is thus reset, the operation proceeds to a step S6; whereas when the transmission timing is not reset, the operation proceeds to a step S7.

In the step S6, the mode selection circuit 22 resets the first transmission mode. The mode setting circuit 20 resets an N value of the second crank pulse at any level, resulting in a timing at which the trigger pulse is generated being rendered variable.

In the step S7, the operation circuit 6 judges whether or not the exhaust gas flow rate calculated by the flow rate detection circuit 5 is below a predetermined level. When the exhaust gas flow rate is judged to be below the predetermined level, the operation proceeds to a step S8.

In the step S8, the mode selection circuit 22 carries out change-over from the second transmission mode to the third transmission mode. When the exhaust gas

flow rate is below the predetermined level, an effect by pulsation is considered to be reduced, so that the mode selection circuit 22 carries out change-over from the second transmission mode to the third transmission mode which permits an exhaust gas flow rate to be measured while reducing a measuring interval.

In the step S9 briefly described above, the transmission timing control section 2 executes processing in the third transmission mode. The dividing/pulse generating circuit 21, as shown in Fig. 3C, generates a trigger pulse at every time when N second crank pulses are generated. Also, the dividing/pulse generating circuit 21 generates a trigger pulse at predetermined intervals irrespective of a rotational angle of the crank shaft 10a. This permits the flow rate detection circuit 5 to measure an exhaust gas flow rate while reducing a measuring interval.

Further descriptions of the plurality of transmission modes are contained in other sections of the specification. So as not to become cumulative, Applicants have not cited each of these sections. Applicants maintain that the descriptions referenced in the previous discussions provide more than sufficient support of the pending claims to overcome the 35 U.S.C. § 112, second paragraph, rejection of claims 1-10. Accordingly, it is respectfully requested that this § 112 rejection be withdrawn.

The Examiner has rejected claims 1-10 as anticipated by U.S. Patent No. 5,557,536 issued to Nabity, et al. ("Nabity"). The Examiner contends that Nabity teaches an ultrasonic velocity measurement system for measuring flow rates of fluid comprising an ultrasonic transmission section for transmitting a signal into fluid and an ultrasonic receiver for receiving a reflected ultrasonic signal. The Examiner further contends that Nabity teaches a transmission timing control section to control the synchronization of the flow meter.

The *Nabity* apparatus includes a transmit signal generator 46 and a timing circuit 44. The timing circuit 44 controls the time at which signals are transmitted into the fluid flow. The timing circuit 44 is used to control the sampling time and repetition rate of the transmitted signals for the purpose of scanning across a range of sampling times and rates. (See column 6, lines 31-65.) *Nabity*, however, discloses that "sampling" is accomplished at a fixed rate. (See column 8, line 34 through column 9, line 2.)

*Nabity*, therefore, does not disclose a transmission timing control section for transmitting signals according to a plurality of predetermined transmission modes or timing sequences. These modes, unlike *Nabity*, are different in transmission timing from each other, e.g., a first mode determining flow rate during each cycle of a crank shaft, and a second mode shifted by a predetermined period from the first mode. Moreover, a third mode can be provided that is independent of the first mode and the second mode and based upon a predetermined interval irrespective of the crank shaft cycle. Such different transmission modes are not disclosed, taught or suggested by *Nabity*. Accordingly, Applicants respectfully request withdrawal of the 35 U.S.C. § 102(b) rejection of claims 1-10, and allowance of all pending claims.

Applicant notes that the Examiner has referenced the Information Disclosure Statement filed June 27, 2001 on the Office Action Summary Sheet and appears to have intended to include an initialed copy with the present Official Action. It appears that this copy was inadvertently omitted, as Applicants' attorneys did not receive such a copy. Applicants respectfully request that a copy be provided for our records at the Examiner's earliest convenience.

Application No.: 09/768,857

Docket No.: KAMMON 3.0-073

As it is believed that all of the rejections set forth in the Official Action have been fully met, favorable reconsideration and allowance are earnestly solicited.

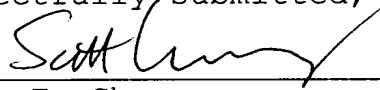
If, however, for any reason the Examiner does not believe that such action can be taken at this time, it is respectfully requested that he telephone applicant's attorney at (908) 654-5000 in order to overcome any additional objections which he might have.

If there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 12-1095 therefor.

Dated: May 8, 2003

Respectfully submitted,

By



Scott E. Charney

Registration No.: 51,548

LERNER, DAVID, LITTENBERG,

KRUMHOLZ & MENTLIK, LLP

600 South Avenue West

Westfield, New Jersey 07090

(908) 654-5000

Attorneys for Applicant